

Washington Correlator

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Abstract

This report summarizes the activities of the Washington Correlator for the year 2004. The Washington Correlator provides up to 136 hours of processing per week, primarily supporting Earth Orientation and astrometric observations. In 2004 the major programs supported include the IVS-R4, IVS-INT, IVS-R1, IVS-T and CRF and CRFD experiments. Two Mark 5 playbacks were added bringing the total at the correlator to 8.

1. Introduction

The Washington Correlator (WACO) is located at and staffed by the U. S. Naval Observatory (USNO) in Washington, DC, USA. The correlator is sponsored and funded by the National Earth Orientation Service (NEOS) which is a joint effort of the USNO and NASA. Dedicated to processing geodetic and astrometric VLBI observations, the facility spent 100 percent of its time on these experiments. All of the weekly IVS-R4 sessions, all of the daily intensives, and several IVS-R1 sessions were processed at WACO. The remaining time was spent on terrestrial reference frame and astrometry sessions. The facility houses a Mark IV Correlator.

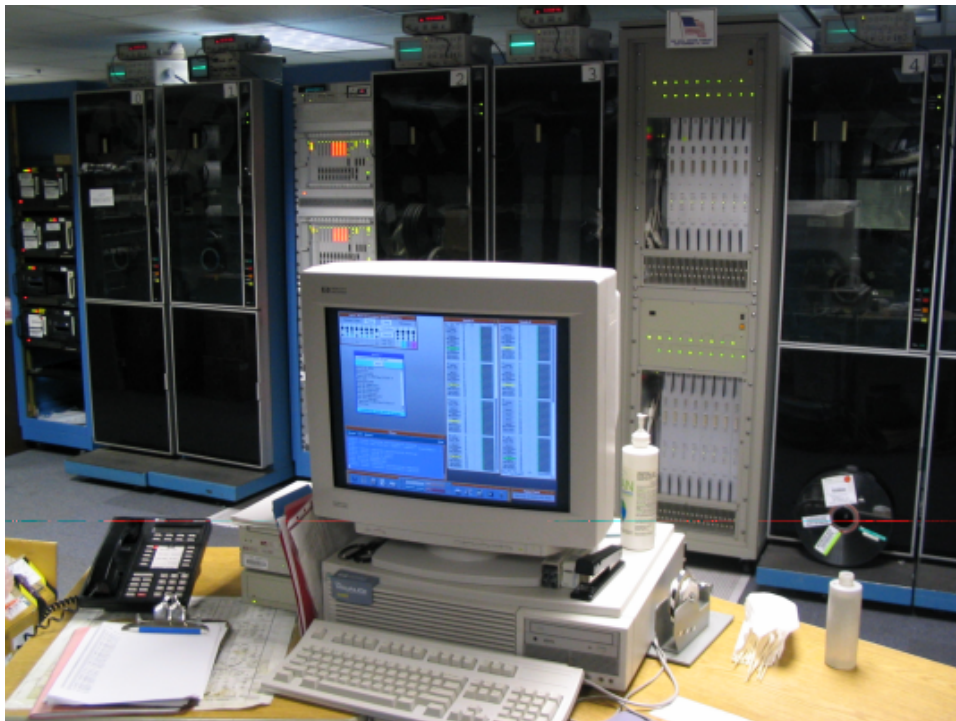


Figure 1. The left half of WACO showing 4 Mark 5A units (left), tape drives, the operator's console, and the central processor (right).

2. Correlator Operations

Early in 2004, the Washington Correlator added 2 Mark 5A units bringing the total at the correlator to 8. This is the maximum number of playback units that can be used by the correlator until the Mark 5B systems and correlator interfaces are available. In addition, two Mark 5As were loaned to the Haystack Correlator, and one was sent to Algonquin. An additional 90 “A” diskpacks were purchased to support IVS programs.

The Washington Correlator also assisted several stations by rapidly, and thoroughly checking their initial Mark 5 recordings to confirm proper installation and operation. While there were a few startup problems requiring additional diagnostics, all of the stations should be congratulated on their rapid and mostly trouble-free conversion to Mark 5 operation. Due to this rapid conversion to mostly Mark 5 recordings, the processing factor for R4 experiments averaged about 1.25, down from 1.5 in 2003.

A highlight of the year was the processing of a 16-station TRF experiment (T2028). This was one of the first 16-station geodetic experiments done on a Mark IV Correlator and many minor problems had to be circumvented. The management of this large experiment was a challenge as well! Overall, the processing went very well, if not the ultimate in efficiency, and proved that large experiments could be processed at the Mark IV correlators without either causing problems to the IVS program or taking an extraordinary amount of correlator resources.

The correlator facility operates up to 136 hours per week.

Table 1 lists the experiments processed during 2004.

Table 1. Experiments processed during 2004

51	IVS-R4 experiments
16	CRF (Celestial Reference Frame)
13	IVS-R1
1	APSG (Asia Pacific)
3	IVS-T (Terrestrial Reference Frame)
199	Intensives

3. Staff

The Washington Correlator is under the management and scientific direction of the Earth Orientation Department of the U.S. Naval Observatory. USNO personnel continue to be responsible for overseeing the scheduling and processing. During the period covered by this report, a private contractor, NVI, Inc., supplied a contract manager and correlator operators. Table 2 lists staff and their duties.

Table 2. Staff

Staff	Duties
Dr. Kerry Kingham (USNO)	VLBI Correlator Project Scientist
Bruce Thornton (NVI)	Operations Manager
Harvis Macon (NVI)	Lead Correlator operator
Roxanne Inniss(NVI)	Tape Librarian
Dwayne Sneed (NVI)	Correlator Operator
Joseph Granderson (NVI)	Correlator Operator
Kenneth Potts (NVI)	Correlator Operator
Steven Springer (NVI)	Part-time Correlator Operator
Lawrence Dorsey (NVI)	Part-time Correlator Operator
Valerie Bockarie (NVI)	Part-time Correlator Operator

4. Outlook

The Washington Correlator plans to upgrade the Mark 5A playbacks to Mark 5B coordinated with the installation of Mark 5Bs at the Network Stations. Processing of 1 Gb/sec experiments awaits the testing of the correlator at the 1 Gb/sec bandwidth.